9. (Twice Amended) A system for controlling an air/fuel ratio in an internal combustion engine, comprising:

a hydrocarbon trap positioned in an exhaust path downstream of the engine;

an air supply device capable of selectively providing a supply of air to said exhaust path upstream of said hydrocarbon trap; and

a controller for biasing the air/fuel ratio in the engine rich of stoichiometry during a time period when said air pump is providing air to said exhaust path and hydrocarbons are being purged from said hydrocarbon trap.

Remarks

Applicant thanks the Examiner for his careful consideration of the subject application. Claims 5-7 and 9-13 are pending. The Examiner has rejected claims 5-7 and 9-11 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,916,129 to Modica et al. The Examiner has rejected claims 12 and 13 under 35 U.S.C. §103(a) as being unpatentable over Modica in view of U.S. Patent No. 6,354,078 to karlsson et al. Applicant has amended claim 9. Applicant respectfully traverses the Examiner's rejections for the reasons set forth below.

Claims 5-7 and 9-10

Independent claim 5 is directed to a method for controlling an air/fuel ratio in an internal combustion engine, comprising the steps:

> (i) *purging hydrocarbons* from an emission control device; and
>
> (ii) adjusting the air/fuel ratio in the engine *rich* of stoichiometry *while purging* the hydrocarbons.

(emphasis added). In other words, claim 5 recites that the engine air/fuel ratio is

maintained rich of stoichiometry when the emission control device is purged hydrocarbons. This arrangement is distinctly different from known methods of purging hydrocarbons from emission control devices, which generally involve adjusting the engine air/fuel ratio *lean* of stoichiometry to avoid delivering an excessive amount of hydrocarbons into the exhaust stream (i.e., from the engine and the emission control device at the same time). Applicant submits that adjusting the engine air/fuel ratio *rich* of stoichiometry is *not* disclosed in Modica.

Modica is directed to an emission control system that includes (referring to Figure 1) a system catalyst 8, a sulfer oxide adsorbent 5, and a heat exchanger 2. *See,* Modica, 3:58-63. The sulfer oxide adsorbent is used to adsorb sulfer oxide in the exhaust stream so as to prevent it from degrading the efficiency of the system catalyst. Modica teaches that oxygen can be added to the exhaust stream before it enters the sulfer oxide adsorbent to increase the adsorption efficiency of the sulfer oxide adsorbent. *See,* Modica, 10:8-11. The sulfer oxide adsorbent does *not* adsorb hydrocarbons, so hydrocarbons obviously cannot be purged from it, as recited in claim 5. Further, Modica does not even teach purging the sulfer oxide adsorbent at all. Therefore, not only is the sulfur oxide adsorbent incapable of purging hydrocarbons, it does not purge *any* gases.

Modica further teaches that a hydrocarbon adsorbent can be used in connection with the sulfur oxide adsorbent. *See,* Modica, 11:28-37. The hydrocarbon adsorbent 5 (*See,* Figure 3) adsorbs hydrocarbons under low temperature conditions and desorbs the adsorbed hydrocarbons under higher temperature conditions. *Id.* However, Modica does not disclose any particular methodology for purging the hydrocarbon adsorbent. Most importantly, Modica does not disclose maintaining an engine air/fuel ratio rich of stoichiometry when purging the hydrocarbon adsorbent.

The Examiner points out that Modica indicates that the engine can be operated with a rich air/fuel mixture. *See*, Modica, 15:29-33. However, nowhere does Modica suggest that the engine should be operated with a rich air/fuel mixture *while purging hydrocarbons* from the hydrocarbon adsorbent. To the contrary, Modica only teaches operating the engine with a rich air/fuel mixture to reduce *NOx* in a catalyst. *See*, Modica, 15:21-32. Modica simply does not recognize that a rich air/fuel ratio can be combusted during hydrocarbon purging.

For at least these reasons, Applicant respectfully submits that Modica does not disclose all of the recited elements of claim 5. Therefore, independent claim 5 and dependent claims 6-7 are allowable over the cited prior art. For the same reasons, independent claim 9 (as amended herein) and dependent claim 10 are also allowable over the cited prior art.

Claims 11-13

Independent claim 11 is directed to a method for controlling an engine having the following steps:

> (i) combusting an air-fuel mixture rich of stoichiometry in an engine cylinder to reduce NOx stored in said first emission control device; and
>
> (ii) applying oxygen upstream of said second emission control device to oxidize hydrocarbons stored in said second emission control device *and hydrocarbons from said combusted rich air-fuel mixture*.

Thus, claim 11 recites applying oxygen to the exhaust stream to oxidize hydrocarbons stored in the second emission control device *and* hydrocarbons from the combusted rich air-fuel mixture. In other words, claim 11 recites combusting a rich air/fuel ratio *while* hydrocarbons are being released from an emission control device. As described above, Modica does not teach this arrangement. For at least this reason, Applicant

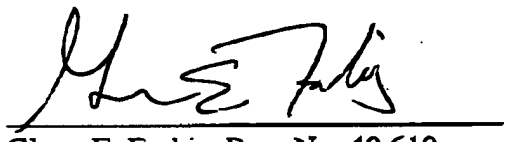
submits that claim 11 is allowable over the cited prior art. For the same reason, dependent claims 12-13 are also allowable.

Conclusion

Therefore, Applicant submits that all pending claims are distinguished over the cited prior art and are in condition for allowance. If the Examiner has any questions or issues relating to Applicant's response, he is encouraged to telephone the undersigned representative.

It is believed that any additional fees due with respect to this paper have already been identified in any transmittal accompanying this paper. However, if any additional fees are required in connection with the filing of this paper that are not identified in any accompanying transmittal, permission is given to charge account number 06-1510 in the name of Ford Global Technologies, Inc.

Respectfully submitted,

Date: August 8, 2002 By: 

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MARKED UP VERSION OF CLAIMS

9. (Twice Amended) A system for controlling an air/fuel ratio in an internal combustion engine, comprising:

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an air supply device capable of selectively providing a supply of air to said exhaust path upstream of said hydrocarbon trap; and

a controller for biasing the air/fuel ratio in the engine rich of stoichiometry during a time period when said air pump is providing air to said exhaust path~~.~~ and hydrocarbons are being purged from said hydrocarbon trap.